PHYSICS MAJOR
(2013 – 2014)
The Charles E. Schmidt College of Science
Bachelor of Arts (BA) or Bachelor of Science (BS)

FOUNDATIONS OF WRITTEN COMMUNICATION
(Gordon Rule Writing (GRW), 6 credits required)
(A grade of “C” or higher is required in each course)

__ ENC 1101 ..............College Writing I (REQUIRED)
__ ENC 1102+..............College Writing II

THE FOLLOWING COURSES CAN BE SUBSTITUTED FOR ENC 1102:
__ ANT 1471+ .............Cultural Difference in a Globalized Society
__ ENC 1930+ ..............University Honors Seminar in Writing (Permit Only)
__ ENY 1939+ ..............Special Topic: College Writing II
__ ENC 2452+ ..........Honor Composition for Science
__ NSP 1195+ .............Being Cared For: Reflections from Other Side of Bed

 Students must take four (4) GRW Courses.
Two (2) must be taken from Foundations of Written Communications.
§Two additional courses are REQUIRED.

FOUNDATIONS OF SOCIETY & HUMAN BEHAVIOR
(6 credits required, select 2 courses from 2 different departments)

Anthropology Department
___ ANT 2000 & D ..................Introduction to Anthropology

Economics Department
___ ECO 2013# ..................Macroeconomic Principles
___ ECO 2023# ..................Microeconomic Principles
___ ECP 2002 ..................Contemporary Economic Issues

Exceptional Student Education Department
___ EEX 2091 ..................Disability and Society

Geosciences Department
___ EVR 2017 ..................Environment and Society

Political Science Department
___ POS 2041 ..................Government of the United States

Psychology Department
___ PSY 1012 ..................General Psychology

Public Administration Department
___ PAD 2258 ..................Changing Env. of Soc., Bus., & Government

Sociology Department
___ SYG 1000 ..................Sociological Perspectives
___ SYG 2010 ..................Social Problems

Urban & Regional Planning Department
___ URP 2051 ..................Designing the City

FOUNDATIONS OF SCIENCE & THE NATURAL WORLD
(13 credits required)
(Courses to be taken from 2 different departments)
(All labs and discussions are required)

--------- 8 credits in Biology or Chemistry are required: ---------

Biology Department
___ BSC 1011 & L & D........ Biodiversity (4 cr. incl. Lab and Discussion)
___ BSC 1012 & L & D........ Biological Principles (4 cr. incl. Lab & Disc)

2 Biology OR 2 Chemistry Courses

Chemistry Department
___ CHM 2045 & L$ .......... General Chemistry I (4 credits incl. Lab)
___ CHM 2046 & L$ .......... General Chemistry II (4 credits incl. Lab)

--------- FOR B.S. & B.A. Degree: ---------

Physics Department
___ PHY 2046 & L* .......... General Physics I (5 credits incl. Lab)

FOUNDATIONS OF MATHEMATICS & QUANTITATIVE REASONING
(Grade of “C” or higher required. 12 credits required)
PRETEST IS REQUIRED BEFORE TAKING YOUR FIRST MATH CLASS
NOTE: Students must take at least one course with the prefix MAC from the list below

MAC 2311: Calculus with Analytic Geometry I (4 cr.)
MAC 2312: Calculus with Analytic Geometry II (4 cr.)
MAC 2313: Calculus with Analytic Geometry III (4 cr.)

Calculus requires a solid background in Algebra and Trigonometry. If you are not ready to take Calculus the following courses will provide the necessary background:

MAC 1105: College Algebra
MAC 1114: Trigonometry
MAC 1140: Precalculus Algebra
MAC 1147: Precalculus Algebra & Trig (5 credits)

FOUNDATIONS IN GLOBAL CITIZENSHIP
(Select 2 courses from 2 different departments) (6 cr. req.)
At least 1 course must be Global Perspectives – (GP)

Anthropology Department
___ ANT 2410 .............Culture and Society (GP)

Curriculum, Culture, & Educational Inquiry Department
___ EDF 2854 .............Educated Citizen in Global Context (GP)

Geography Department
___ GEA 2000 & D ..........World Geography (GP)

History Department
___ AMH 2010 (P/F) ............United States History to 1877
___ AMH 2020 (P/F) ............United States History Since 1877
___ WOH 2012 & D** ........ History of Civilization I (GRW) (GP)
___ WOH 2022 .............History of Civilization II (GP)

Languages, Linguistics, & Comparative Literature Department
___ LAS 2000 .............Intro to Caribbean & Latin American Studies
___ LIN 2607 .............Global Perspectives on Language (GP)

Philosophy Department
___ PHI 2010 & D** ...........Introduction to Philosophy (GRW)

Political Science Department
___ INR 2002 ...........Introduction to World Politics (GP)

Sociology Department
___ SYD 2790 .............Race, Class, Gender, and Sexuality
___ SYP 2450 .............Global Society (GP)

Social Work Department
___ SOW 1006 .............Global Perspectives of Social Services (GP)

FOUNDATIONS OF CREATIVE EXPRESSION
(6 credits req, select 2 courses from 2 different departments)

Architecture Department
___ ARC 2208 .............Culture & Architecture

Visual Art & Art History Department
___ ARH 2000 (P/F) ...........Art Appreciation

School of Communication & Multimedia Studies
___ FIL 2000 & D ..........Film Appreciation

English Department
___ LIT 2100 ................ Interpretation of Fiction (GRW)
___ LIT 2300 ................ Interpretation of Poetry (GRW)
___ LIT 2400 ................ Interpretation of Drama (GRW)
___ LIT 2700 ................ Interpretation of Creative Nonfiction (GRW)

Languages, Linguistics, & Comparative Literature Department
___ LIT 2100 .................Intro to World Literature

Music Department
___ MUL 2010 ................ History & Appreciation of Music

Theatre & Dance Department
___ DAN 2100 .................Appreciation of Dance
___ THE 2000 .................Appreciation of Theatre
STUDENTS ASSUME RESPONSIBILITY FOR MEETING ALL GRADUATION REQUIREMENTS

Course selections should be made in consultation with an advisor

Legend

+ - ENC 1101 is a prerequisite.
++ - Two Foundations of Written Communications classes are required before taking this class.
# - Sophomore standing (30 credits earned) is required.
** - MAC 2281 or MAC 2311 is a prerequisite for this class. If a lab is needed take General Physics 1 Lab (PHY 2048 Lab).
*** - MAC 1105 and MAC 1114 are prerequisites for this class. If a lab is needed take General Physics 1 Lab (PHY 2048 Lab).
† - A corequisite of College Algebra (MAC 1105) or a prerequisite of Introductory Chemistry (CHM 1025).
◊ - A "B" in CHM 2045 and a grade of "C" or better in ENC 1101 in addition to a co-requisite of CHM 2051C is needed.
GRW - (WAC) Writing across the curriculum class.
D - A discussion is linked to the lecture. Students must register for the discussion in addition to the lecture.
L - A lab is linked to the lecture. Students must register for the lab in addition to the lecture.
P/F - Course may be taken pass (P) or fail (F) or for a letter grade. Indicate your preferred grading option during registration.
§ - We strongly recommend the two additional GRW courses come from Foundations of Global Citizenship and/or Foundations of Creative Expressions. Courses include: PHI 2010, WOH 2012, LIT 2010, LIT 2030, LIT 2040, LIT 2070. See advisor for additional details.

FOREIGN LANGUAGE (4 - 8 credits, 1 or more courses in the same language) - REQUIRED FOR MAJOR

Students with more than one year of a foreign language in high school should enroll in the second half of the beginners foreign language class (ARA/CHI/FRE/GER/GRE/GRK/HBR/ITA/JPN/LAT/SPN 1121) or a higher level course. Proficiency for a first-level course can be earned by successfully completing a second-level course. For questions related to this requirement, consult an academic advisor. CLEP exam credits meet this requirement: see the catalog.

NOTE: Native Speakers of a foreign language must consult the Languages, Linguistics, and Comparative Literature Department regarding this requirement.

NOTE: Honors Seminars SHALL BE ACCEPTED AS MEETING THE GORDON RULE WRITING REQUIREMENT. See the University Advising Services Office for details.

HONORS NOTE: Students can apply for the PSYCHOLOGY HONORS PROGRAM after completion of 60 credits, and before completion of 105 credits. Students must have a 3.2 overall & Psychology GPA to be admitted and retained in the Honors track.

<table>
<thead>
<tr>
<th>Credits</th>
<th>Requirement</th>
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<tr>
<td>12 credits</td>
<td>Mathematics – Calculus (B.A. and B.S. Degree)</td>
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<tr>
<td>25 – 44</td>
<td>Physics Major (44 credits for B.S. and 25 credits for B.A)</td>
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<tr>
<td>32 – 55</td>
<td>Free Electives</td>
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<tr>
<td>120 CREDITS</td>
<td>TOTAL</td>
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NOTE: See the catalog for specific requirements, course descriptions, and additional information. The requirements for some Intellectual Foundations Program (I.F.P.) courses & other courses may be satisfied by passing the appropriate AP or CLEP exam. Check with your advisor and college.

The Charles E. Schmidt College of Science has the following requirements:

1. Any course work in the major field transferred from another institution must be approved by the major department;
2. No major course may be taken pass/fail;
3. The maximum amount of credit which may be earned through co-op is 10 credits; some departments allow some of these credits to substitute for major courses, check with department for specifics;
4. A grade of “C” or better is required in all the physics, mathematics, and chemistry courses taken as part of the course requirements for a degree within the department.
MAJOR COURSES, COLLEGE REQUIREMENTS and ELECTIVES

PHYSICS Core

Introductory Physics Courses - (9 credits) – REQUIRED for both B.A. and B.S. Degree
PHY 2049 & L General Physics II & Lab - PHY2048 with lab is a prerequisite (5 credits)
PHZ 2106 General Physics III - MAC 2313 and PHY 2049 with lab are prerequisites (4 credits)

BACHELOR OF SCIENCE (BS) DEGREE (44 credits total, 13 courses)

Additional Mathematics Introductory Course (3 credits)
MAS 2103 Matrix Theory (3 credits)

Bachelor of Science Additional Intermediate Core Requirements (41 credits)
PHY 3101C Survey of Modern Physics - PHY 2049 & lab & MAC 2313 are prereqs (5 credits)
PHY 3221 Classical Mechanics - PHY 2048 with lab & MAC 2313 are prerequisites (4 credits)
PHY 3323 Electromagnetism I - PHY 2049 with labs & MAC 2313 are prerequisites (4 credits)
PHY 4324 Electromagnetism II - PHY 3323 is a prerequisite (4 credits)
PHY 3503 Thermodynamics - MAC 2313 and PHY 2048 with lab is a prerequisite (4 credits)
PHY 4523 Statistical Physics - PHY 3101C is a prerequisite (3 credits)
PHY 4604 Quantum Mechanics I – PHY 3101C prereq. and PHZ 3113 a coreq. (4 credits)
PHY 4605 Quantum Mechanics II - PHY 4604 is a prerequisite (3 credits)
PHY 3722C Physical Electronics - PHY 2049 is a prerequisite (4 credits)
PHY 4811L Undergraduate Laboratory - PHY 3101C is a prerequisite (2 credits)
PHZ 3113 Math. Methods for Physics - PHZ 2106 a prereq or instructor permission (3 credits)

BACHELOR OF ARTS (BA) DEGREE (25 credits total, 6 courses)

Additional Mathematics Introductory Course (3 credits)
MAS 2103 Matrix Theory (3 credits)

Bachelor of Arts Additional Intermediate Core Requirements (22 credits)
PHY 3101C Survey of Modern Physics - PHY 2049 & lab & MAC 2313 are prereqs (5 credits)
PHY 3221 Classical Mechanics - PHY 2048 with lab & MAC 2313 are prerequisites (4 credits)
PHY 3323 Electromagnetism I - PHY 2049 with lab & MAC 2313 are prerequisites (4 credits)
PHY 4604 Quantum Mechanics I – PHY 3101C prereq, and PHZ 3113 a coreq (4 credits)

Choose at least three (3) credits from the following list:
PHY 3503 Thermodynamics - MAC 2313 and PHY 2048 with lab is a prerequisite (4 credits)
PHY 4523 Statistical Physics - PHY 3101C is a prerequisite (3 credits)
PHY 3722C Physical Electronics - PHY 2049 is a prerequisite (4 credits)

FREE ELECTIVES (32 – 55 credits)
Free electives are courses in any college, any department, including Physics, needed to meet the 120 credits required for graduation.

Optional Preprofessional Track (23 credits) - Required Courses

BSC 1011 & L Biodiversity with lab (3 + 1 = 4 credits)
BSC 1010 & L Biological Principles with lab (3 + 1 = 4 credits)
CHM 2210 & D Organic Chemistry I with discussion (3 cr) - CHM 2045 & CHM 2046 with labs are prerequisites
CHM 2211 Organic Chemistry II (3 credits)
CHM 2211L Organic Chemistry II Lab (2 credits)
PCB 3063 Genetics (4 credits) - BSC 1011 and BSC 1010 with labs are prerequisites
BCH 3033 Biochemistry I (3 credits) - 8 credits of organic chemistry is the prerequisite